



Clever Health

Evaluation Report 2

**Centre for Regional Innovation and Competitiveness
(CRIC)**

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Executive Summary

This report forms the second of a series of evaluation reports intended to provide ongoing monitoring of the Clever Health project. Clever Health is the result of funding received by the Grampians Rural Health Alliance Network (GRHANet) in mid 2007 under the Clever Networks program. The Clever Networks project, managed by the Department of Broadband, Communications and the Digital Economy (DBCDE), formerly known as the Department of Communications, Information Technology and the Arts (DCITA), provided a grant of \$3.385 million.

The second round of evaluation of Clever Health investigated the change in perceptions of the Clever Health project in general and the following project components in particular: (1) High Quality Mobile Video Conference Units, associated specialist equipment and Primary health care service delivery; (2) eLearning; (3) NextG IP Gateway; (4) Ballarat Health Services (BHS) Operating Room VC; (5) the GRHANet and the University of Ballarat link; and (6) Peer Support. The qualitative data collection method utilised for this report involved three (3) focus groups and one-on-one interviews with key stakeholders. A semi-structured interview schedule was designed to elicit general perceptions, anticipated uptake of Clever Health components and planned behaviour around such uptake.

To date, awareness of the Clever Health project has been predominantly on the senior management level, many of which have been involved in the project from the start. Nonetheless, awareness is becoming more widespread, partially as a result of an intensive awareness raising campaign being undertaken by the Clever Health team, and partially due to increased interest in and understanding of the potential of Clever Health for primary health care.

Stakeholders generally agreed that there were multiple and exciting opportunities for the use of Clever Health components, ranging from improving access to better primary and allied health care and training, to reducing isolation and risk, building partnerships in health care, increasing peer support, better recruitment and retention of staff across different spectrums, and reducing silos and the culture related to silo behaviour. There also is growing interest from external stakeholders to link into the

Clever Health network, which is reciprocated by regional stakeholders eager to link into external expertise, particularly in tertiary institutions located in the metropolitan area.

Generally the perceptions around the use of video-conferencing (VC) for meetings, training and peer support are positive. Although network and equipment failure are uncommon, any technological malfunction tends to impact on user confidence. Recurring issues identified by stakeholders were access to VC equipment in multi-function rooms and the complexity of separate equipment and room booking. While these issues are of concern, they fall outside the terms of reference for the project.

High quality mobile VC equipment and associated PHC service delivery: Initial perceptions of the Mobile Units are positive and growing with increased awareness of their potential. Two high quality mobile devices, also referred to as Intern II mobile VC units, are now in place in the region with diagnostic peripherals and further rollout of Interns has been scheduled. The ability to access diagnostic expertise and share patient information in a timely manner is perceived as a particularly useful benefit. Non-clinical uses for the Interns, such as using the mobile VC for meetings and training, are also considered useful. Two of the main issues raised vis-à-vis the use of the Mobile Units pertained to VC linkage gaps with tertiary institutions and the need to build policies and protocols around Intern use with clients. The latter is being addressed through the development of a uniform consent and patient information form for use by participating health services.

eLearning: Stakeholders' willingness to engage with VC for Continuing Professional Development (CPD) has changed markedly since the last evaluation report. This change can be attributed to Clever Health's awareness raising campaign and associated efforts to identify opportunities to access training via the GHRANet infrastructure and through hospital intranets.

Multiple and exciting opportunities were identified, not just for eLearning, but also for the recording and delivery of training to regionally dispersed primary health teams. Mentoring was also identified by stakeholders as an important eLearning opportunity. Stakeholders saw great benefit in reduced travel, travel fatigue and associated risks.

As in the past, issues surrounding computer literacy were raised, in particular among older health professionals. Stakeholders called for the delivery of computer skills to promote the uptake of eLearning and other computer-based activities. While computer literacy issues fall outside the parameters of the Clever Health project, it was recognised that the project is well placed to facilitate access to technology training via the GRHANet infrastructure.

NextG IP Gateway: The redundancy component of the NextG IP Gateway is in place, but there have been some delays in rollout and uptake of NextG services due to coordination issues arising from the multitude of suppliers involved in this component. Stakeholders showed great interest in the ability to transmit images from the Interns to a practitioner on call. Another benefit identified by stakeholders was the ability for an allied health person to use NextG to input information directly into the network.

While security issues will need to be resolved around the use of patient data over the open GRHANet network, smaller healthcare providers in particular pointed to the potential of easier and timely access to medical expertise.

Video-conferencing Facilities in BHS Operating Room: Since the first report, the VC design work on the Ballarat Health Services (BHS) Operating Room has been completed including a link to the BHS lecture theatre. Stakeholders were particularly excited about the ability to use the VC facility as an education tool and the ability to record and playback procedures on demand. With a regional medical school coming online in 2010, this is perceived as an excellent opportunity for both medical practitioners and students to review procedures.

Stakeholders did note that legal issues still need to be fully investigated in this area, particularly around the matter of informed consent from patients.

GRHANet University of Ballarat Link: This link is now fully operational. Stakeholders were unanimous in their enthusiasm for the rollout of non-clinical units across the network, but also expressed a need to better understand the logistics of eLearning rollout in terms of policies, procedures and financial arrangements.



UB will deliver three introductory Information Technology units in established 'distance education' practice complemented by video-conferencing and online content. Sessions will be recorded for subsequent re-broadcasting, which will be useful to students unable to attend scheduled video-conferencing sessions.

Peer Support: As part of the network building work being undertaken by GRHANet, awareness of the potential of, and interest in, peer support has been growing at a steady pace. A number of professional groups are starting to utilise the VC system for team meetings and peer support among special interest groups such as Speech Therapists and Palliative care teams. A Neuro-Psychology trial recently conducted between Ballarat and Horsham to provide mentoring to students out in the region has been positive and the trial is now moving forward to using VC for remote family meetings and consultations.

In summary, awareness of the Clever Health project has grown exponentially and perceptions of the potential of Clever Health components are positive. Stakeholders are increasingly willing to be involved in what they perceive to be a great opportunity for their health service and for their region as a whole. It is evident that the Clever Health project is a significant change management exercise that will take time to be understood and adopted. Solving infrastructure hurdles, encouraging technology uptake through information and training sessions, and working with stakeholders on establishing appropriate policies and protocols are useful and important steps towards enabling new, more efficient ways of primary patient care, continuing professional development, learning and teaching in the Grampians region.

The project is well placed to continue to strengthen relationships across the region and it is clear that there is potential for servicing the region on a number of levels through the GRHANet infrastructure. The project has already demonstrated great potential for building new networks, relationships and alliances that allow for economies of scale and scope that extend well beyond the Grampians region. As the project proceeds, network usage will need to be carefully managed to ensure GRHANet's infrastructure and resources are able to facilitate a growing take-up of services.



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1 Project Overview

1.1 Background

This report is the second evaluation report in a series for the Clever Health project. The aim of the report is to continue the evaluation of stakeholder perceptions of the extent to which outputs and outcomes were achieved, timelines were met, and how efficiently resources were allocated and distributed to the project and its activities. This in turn will be utilised to assist in the optimisation and efficacy of this and future telehealth programs.

1.2 Project Context

The Clever Health project is designed to:

1. Develop innovative delivery of Primary Health Care (PHC) services to the region and ways of providing: peer support and advice mechanisms, decision making pathways and development of evidence based practice and case analysis by linking the Emergency/Urgent Care and Maternity Departments in the region with high quality video conference and associated specialist equipment. These are expected to deliver increased levels of patient care and are crucial in attracting and retaining skilled professionals;
2. Increase skills for health professionals in the region by working with providers to develop and deliver blended learning professional development programs via the network;
3. Trial innovation using wireless technologies in the delivery of better patient care;
4. Improve the high availability characteristics of the network to a level that complements the mission critical nature of the network by redundant connections to crucial sites through the alternative telecommunications path provided by the NextG network;



5. Distribute surgical expertise by establishing high quality video conference facilities in the new Operating Theatre at Ballarat Health Services linked to their Education Resource Centre and the rest of the GRHANet network. This will enable doctors to view new surgical techniques and interact with surgeons;
6. Link the GRHANet and University of Ballarat networks, thus facilitating the delivery of first level training and professional development to the region from within the region; and
7. Enable broader community education and access through the more effective use of broadband technologies.

1.3 Objectives

The evaluation program is designed to investigate the progress of Clever Health in the five categories of activities above. The five components have been incorporated into an evaluation plan (see Appendix 1), which in summary are:

1. High Quality Mobile Video Conference Units, associated specialist equipment and Primary health care service delivery.
2. eLearning rollout
3. Installation of NextG IP gateway
4. Establishment of high quality video facilities in new Operating theatre at BHS
5. Linking GRHANet and University of Ballarat.

The Clever Health evaluation takes a formative and summative approach to these five main project components. Formative evaluation includes regular stakeholder feedback during the course of the project to ensure that it remains on track. This incorporates the focus groups and key stakeholder interviews reported on in this report.

Both formative and summative program evaluation focuses on the extent to which the project achieves its specific goals and objectives. Evaluation focuses on the extent to



which project goals are realised (awareness, effectiveness), and at what perceived cost (outcomes, impact, efficiency).

Specifically, the evaluation seeks to examine stakeholders' perceptions of:

- The extent to which outputs and outcomes were achieved;
- The timeliness of project milestone achievement; and
- The awareness, use and benefits of the program.

The evaluation will produce a total of five (5) reports with 6-monthly intervals. Reports are delivered to the Program Director in line with Clever Health program reporting. This report is the second in a series of five reports, which will be delivered according to the following schedule:

- May 2008 (2nd report)
- November 2008
- May 2009
- November 2009 (Final Report).

1.4 Project Team

The University of Ballarat (UB) Project Team comprises individuals from the Centre for Regional Innovation and Competitiveness (CRIC). Participants include:

- Dr Patrice Braun (Clever Health Steering Committee Member)
- Sue Tomkinson, Susan LaPira (Focus Group & Administrative Assistants)



2 Methodology

2.1 Study Design

The methods used to collect data for this report were focus groups and semi-structured interviews with key stakeholders in the project. In this early stage of rollout of the Clever Health project, the evaluation methodology remains largely qualitative, intending to capture participants' perceptions and expectations of the Clever Health project to date and as it progresses.

2.2 Evaluation Method

At the outset of the program in mid 2007, a series of individual stakeholder interviews were conducted with key stakeholders (see Evaluation Report 1). These interviews were transcribed and the content analysed using NVivo qualitative analysis software for the main themes related to each question area and to capture baseline expectations of stakeholders in the early stage of Clever Health project rollout.

The aim of the second phase of evaluation was to capture current perceptions of awareness, expectations and projected use of Clever Health components and to compare those to initial perceptions and expectations for themes and perceived changes in awareness and progress of the Clever Health project.

Interview and focus group questions were designed to add to baseline data which in turn will inform the design of a larger survey evaluation instrument to be deployed during the next phases of project evaluation. Intended to build longitudinal data, the survey will measure attitudes, perceptions and behaviour (perceptual scales) in terms of Clever Health project performance, impact and change on health care, skill levels and collaboration within the region. The framework underpinning the current design of focus group and interview questions is based on the anticipated uptake of Clever Health components and planned behaviour around such uptake. Future surveys will measure whether this intention (which can be broken down into attitudes, norms, behavioural control (the option to say yes or no to uptake of the innovation) leads to behaviour change (or not).



2.2.1 Phase II Intervention

The Phase II Intervention for Evaluation Report 2 took place between November 2007 and April 2008. The intervention consisted of:

- (a) Three focus group sessions held via video-conference (VC) with panel members representative of regional stakeholders that interact with the Clever Health program. Panel members included health service managers, Directors of Nursing, education officers and allied health professionals (See Appendix 2).
- (b) Interviews with key stakeholders strategically involved in the Clever Health project (see Appendix 4).

2.3 Focus Groups & Interviews

A total of 18 stakeholders took part in three (3) focus groups (see Appendix 2). Face-to-face interviews were conducted with key stakeholders, selection of which was determined in consultation with the Clever Health project team (See Appendix 4). Interviewees were selected for their expertise in telehealth, understanding of and/or close involvement with the Clever Health project

A semi-structured interview guide was utilised for both the focus groups and personal interviews (see Appendix 3). Building on Report 1 outcomes, the interview structure was designed to elicit levels of awareness and perceptions pertaining to the five key components of the Clever Health project. Prompts were used to encourage stakeholders to freely express their thoughts and ideas, raise issues of concern, and pursue areas of interest that might arise from the conversation. Recording stakeholder perceptions in this way was considered useful to reveal factors that may influence uptake and speed of adoption of the various telehealth initiatives in stakeholders' respective settings. All focus groups and interviews were transcribed, collated and analysed for recurring themes.

3 Findings

Outcomes of the focus groups responses and interviews are summarised below. Findings include representative quotes from a cross-section of Clever Health stakeholders to illustrate the variety of perceptions that were captured during the intervention.

3.1 General Perceptions

3.1.1 Focus Groups via VC

Focus groups were purposely conducted via VC to gauge both participants' comfort level with VC and to determine the efficacy of the medium for interaction and evaluation. A particular effort was made by the focus group facilitator to ensure that those not in the same location felt included in the focus group and were comfortable participating spontaneously in discussions without specific prompting by the facilitator.

In general, creating a sense of 'belonging' was most manageable within Focus Group 3, which had three people in the same location as the facilitator and only one person connected via video-conference. Where more participants were connected via video-conference (as was the case with Focus Groups 1 and 2), there was less interaction and conversation fluidity. As one participant remarked, *"it is very interesting like just watching this meeting where the interaction is mostly taking place is around the table that you are sitting at and there is not a lot of interaction from here – we are just talking when you ask us questions. I find that with our [meetings]...when we have VC [the meetings] become quite short and quite formal and nowhere near as much interaction as when you are live. I guess a part of it is becoming familiar with it too and learning how to use it...for good conferencing"*.



3.1.2 Clever Health Awareness

Since the last report, there has been considerable emphasis on awareness raising of the Clever Health project. A Clever Health Project Officer was appointed six months ago who, among other tasks, has taken on the responsibility of liaising with stakeholders across the region, raise awareness of the Clever Health project, and demonstrate the functionality of VC project components.

In particular, the awareness raising campaign has focused on deeper penetration into regional health services in terms of explaining the project, providing VC training to staff and augmenting willingness to engage with VC. Says the Clever Health Project Officer, *"I think we are about 30% along with the objectives that we set. We are just at the point where people are starting to try it out in terms of a clinical usage or professional development usage"*.

Stakeholders generally agreed that to date awareness of the Clever Health project has predominantly been on the executive level and among senior management, many of which have been involved in the project by being on the Steering Committee on or one of the working parties. However, health services are becoming increasingly active in raising awareness, especially those health services that understand that it is imperative to engage staff and create the vision before they can get staff to change their practices. Said one regional health service stakeholder: *"I think it is really important. We know that we can't keep doing business how we have always done it...we might not achieve every single thing that we set out to in the first place, but we have to stick with a vision of trying to be leaders in improving access in health. So it is a really important piece of work, and somehow or other we have to just keep persevering and keep developing action plans"*.

Awareness is starting to trickle down organisational structures, partially through participation in demonstrations and VC training, and partially through information dissemination such as newsletters. As a regional stakeholder illustrates, *"[we] are talking about it at the coal face level with the nursing staff and other allied health and anyone else in the organisation [knows about it] through the newsletter"*.



Selected focus group participants had little awareness of the Clever Health project, but generally showed great interest in the project and used the VC focus group as an opportunity to catch up on what was happening. *“This is a good chance to hear from others what has been happening with the project”*, said one focus group participant.

3.1.3 Clever Health Expectations

A variety of expectations were recorded from participants, ranging from improving access to better primary care and training, to reducing isolation and risk, building partnerships in health, increasing peer support, better recruitment and retention of staff across different spectrums, and reducing silos and the culture related to silo behaviour.

Stakeholders generally agreed that there were multiple and exciting opportunities for the use of the Clever Health infrastructure. Drilling down into specific opportunities, expectations varied depending on the role and location of health professionals. As one Ballarat-based stakeholder involved in psychiatric service provision explained, *“How we thought Clever Health could help is that we are a very small team...to cover the entire region for Psychiatric Service, so that is from Bacchus Marsh to the South Australian border. Recruitment in the Wimmera side of our region has been really difficult and I have not been able to fill the positions. [We] have to fill them in Ballarat and then provide an outreach service which means a lot of that small resource has been used in travelling times and things like that. ...we could probably work smarter and not harder, that’s where the VC idea came into it”*.

Another Ballarat-based stakeholder described how her small community therapy team for people with disabilities across the Grampians region would similarly like to use the Clever Health infrastructure, and particularly the VC network, to be able to liaise with and support allied health workers across the region in their services to people with disabilities.

Stakeholders had great expectations in terms of saving time and reducing staff travel risks by using VC. *“Given where we are and something is at Ballarat – that’s a 3 hour round trip, and that is not even counting the training. So when everyone talks about time and the cost of fuel and that...but it is also a risk management situation where*

you are reducing the risk of someone actually being involved in a motor vehicle accident. And while there are costs inherent in that, the worst thing about that is if someone gets injured – the actual cost to their health”.

Rural health services across the Grampians region also stressed the importance of Clever Health for building relationships with regional and tertiary institutions in the metropolitan area. *“We are quite isolated and [it is] a terrible challenge hanging onto enough medical staff”.*

Stakeholders also pointed to the growing interest from external stakeholders to link into the Clever Health network. Explained the Clever Health Project Manager: *We conceptually understood where this could go, but in terms of putting it into practice, there are a lot people out there with some good ideas about how practice could be improved using the technology and we seem to be hitting that at the right time...the [unexpected] linkages that are being developed [with the neuro-psychology unit and hospitals in Melbourne] is a good example”.* Others were more hesitant about the unanticipated potential of the Clever Health network. *“It sounds a bit silly, but sometimes we don’t know what the possibilities are until we actually get the next step down the pathway – we are not sure what is around the corner. I think it is more that we have sort of turned the light bulb on for a lot of people in that they are actually now starting to conceptualise the opportunities”.*

3.2 Project Components

3.2.1 High Quality Mobile Devices and associated PHC Service Delivery

There are currently two High Quality Mobile Devices, also referred to as Intern II mobile VC units, in place in the region. These units are located at the Wimmera Health Care Group in Horsham and the Stawell Regional Hospital. Recommendations for the rollout of the next group of Interns have been made to the Clever Health Steering Committee and these will be delivered to the health services during May.

To date, the health services in question have been testing the VC units, linking them to their respective wireless networks and testing the diagnostic peripherals provided



with the unit. While the portable Interns have been wheeled around and have been used for VC meetings in different rooms, they have not yet been used for primary patient care by the respective health services. Since the delivery of the first Intern, the Clever Health project has purchased a new set of diagnostic peripherals, which includes a Flexiscope Unit, Ophthalmoscope probe, Otoscope probe, Mouth/Face probe, Endoscope adaptor, and a Dermatology probe. Based on input from the health agencies on the usability of the new set of peripherals, seven additional packages have been ordered, which will replace the initial US diagnostic package with a more compact and user-friendly Australian equivalent.

As part of the awareness raising campaign, Clever Health Project Officer has been demonstrating the capabilities of the Intern to health staff across the region. This approach has been taken to familiarise staff with the equipment and ensure that they are comfortable using it. *"We have to build regular opportunities where they can use the equipment and know that it works for them to even consider using it [with a patient or] in an emergency", explained the Project Officer. "We are getting a lot of excitement among the senior nurses, so this is the next step down from the people who have already been involved in the project. We have been demonstrating and training them, and the equipment we are using now is much more intuitive than our original version, so it is easy to put together and they are finding it much more like the normal ophthalmoscope they would use or the normal ENT scope".*

Initial perceptions of the Mobile Units are positive and growing with increased awareness. *"We have done a lot of talking about it, I guess now it is about planning the next stage of implementation such as the interns" observed one stakeholder. "I am looking forward to expanding the accessibility of mental health consultations – which seem to be a huge gap in our part of the world".*

Another particularly useful benefit of the Mobile Unit discussed among participants was the ability to share patient information in a timely manner. As one regional stakeholder illustrated, *"The mobile interns, as I understand, have a number of scopes and probes and things attached to them so that if a patient is going to be transferred from say Ararat to Ballarat, there is an opportunity for staff in Ballarat to have an understanding of the severity and complexity of the issue that is being*



transferred prior [to the patient's arrival]. What it means for us in ED is that [we] can assist with the process of that diagnosis, and/or be prepared and know what it is that is going to be transferred into our health service or from us to a tertiary hospital in Melbourne. The Clever Health project team is working with the Loddon Mallee Rural Health Alliance to ensure participating metro health services are contacted in a systemic manner and not become overloaded.

Some saw non-clinical uses for the Interns as well. "The Interns, we could also use those for VC as well, that gives us portable units where we would be able to take it to our own specific office. With the Intern we will actually be able to have smaller more intimate group areas set up where we can take it into our office".

The biggest issue raised vis-à-vis the use of the Mobile Units was the need to build policies and protocols around their use with clients. Explained one stakeholder: "[it is important that clients know that]...*there is nobody hiding behind the camera that is listening in that you can't see...*[patients] *need to have a level of comfort and we are trying to identify ways that we can build their acceptance and willingness to engage with this material*".

In collaboration with the BHS community advisory committee, the Clever Health team has been working on a consent and patient information flyer to ensure that health services provide uniform information to clients about the functionality and use of Interns and that all health services have the same protocols and policies in place pertaining to the use of same.

3.2.2 eLearning

Stakeholders' perceptions of and willingness to engage with VC for Continuing Professional Development (CPD) have changed markedly since the last evaluation report. This change can in part be attributed to Clever Health's awareness raising campaign, in particular the train the trainer sessions to record training sessions, and the promotion of the value of 'anytime' access to training.

Focus group participants showed great interest in the fact that VC events can now be recorded and stored on the Clever Health content server. One participant thought it



would be especially useful for special interest group meetings and case reviews. “[There is] *great benefit then to have a library to look back and say well this is what happened in that case study*”. Said another participant, “*We could have a follow up with that video and follow it on with some of our own stuff as well*” [e.g., upload content to the server].

The change in awareness and interest in eLearning can also be attributed to the Clever Health team efforts to identify opportunities to promote access to training via the GHRANet infrastructure and through hospital intranets. The Clever Health Project Officer provided the following example: “*Flinders University are funded under a recruitment and retention program to do some CPD stuff ...they are doing it by VC and [GRHANet] is linking all of the VC sites. We are using a lot of our sites, but we are also linking in other areas as well... So it is interesting to see. It is part of the eLearning for Clever Health. It fits very nicely*”.

Although many stakeholders reported that much of their CPD was still undertaken in traditional mode with people going to study days or reading textbooks, stakeholders generally recognised the potential of eLearning. One stakeholder mentioned they had been using an external eLearning provider and several others indicated that they were keenly awaiting the rollout of core clinical competency modules currently under development through the Grampians eLearning Working Party (GREWP). The latter has successfully forged a partnership with the Loddon-Mallee health region to share module development costs and achieve economies of scale in module uptake.

All stakeholders agreed that access to core clinical units was imperative. “*I think once we get specific modules up, people will think I need to know about continence, or infection control and those sorts of things. I think ultimately everybody in the organisation could [benefit from eLearning]...everyone could do manual handling, everyone could do fire. Three quarters of the workforce does basic life support. So that is just 3 very fundamental things before you get into anything more complex like kinetics, dementia behaviours, or continence management, or any of the other multitude of different things that [can be delivered via eLearning]. It [eLearning] just has to be an adjunct to your actual other learning modalities like face-to-face,*



auditory, and tutorials and whatever. But it is a very good component. I think that has a huge future”.

Several participants talked about the benefits to tap into eLearning such as the reduction in staff travel and travel fatigue. *“We don’t measure the education and we don’t map it out precisely, but we know it is 3 hours to Melbourne each way plus the time you spend there...it’s a huge risk reduction as well ...car accident risk reduction”.*

Stakeholders generally agreed that there were multiple and exciting opportunities not just for the use but also for the delivery of training via the Clever Health infrastructure. Said one Ballarat-based stakeholder, whose health unit provides specialist support services to GP’s and other health professionals across the region, *“we might provide direct assessment, education and training and also secondary consultation to community health services or anybody who needs us via the VC”.*

Another Ballarat-based stakeholder described how her small community therapy team for people with disabilities across the Grampians region would similarly like to use the Clever Health infrastructure, and particularly the VC network, for education, peer support and professional development. *“...the thing that we would like to do additional is we would really like to set up some links with some of the special interest groups in metropolitan Melbourne with our local regional occupational therapy, physios and speech groups”.*

As in the past, issues surrounding computer literacy to access eLearning entered the conversation. Computer literacy still varies considerably across health services with the older nursing demographic being identified out as having the lowest level of literacy. Stakeholders recognised the potential of providing computer skills to promote the uptake of eLearning and other computer-based activities. Availability of word processing and search skills were mentioned as possible offerings via the GRHANet infrastructure.

Another recurring issue is the availability of VC equipment for eLearning. Said one stakeholder, *“I think staff would be happy to take on [eLearning]. The problem will be the rooms where the VC equipment is are also meeting rooms, training rooms,*

physiotherapy rooms". Other stakeholders agreed: "We have the same problem. Although our rooms are not quite as multi purpose...but it is a meeting room, training room as well". Explained another participant, "at the moment, VC takes precedence over other meetings. If the volume increases significantly, we would have to look at alternative facilities and I guess a change to our building fabrication".

Other issues pointed out by stakeholders pertain to room bookings and reliability of the VC network. *"The thing that I find really difficult about actually booking VC is that you have to book the room separately to the equipment and of course by the time you have booked the equipment and then you try and find the room there is a lot of fiddling around. We have actually had quite a bad track record with our VC. This morning we were meant to go online at 9am and there was a huge problem with a number of sites and that is the second time that has happened and our girls don't have a lot of faith in it at the moment".*

3.2.3 NextG IP Gateway

While the IP Gateway is in place, there have been some delays in rollout and uptake of NextG services due to coordination issues arising from the multitude of suppliers involved in this component. As the Clever Health Project Manager explained, *"Part of the NextG Gateway purpose is as a redundancy link – an extra safety link if you will – for the GRHANet network at specific points. That has been tested and is working OK".*

Using NextG as an extension of the GRHANet network has turned out to be more problematic. *"It took a long time to get the appropriate people talking to each other within 2 organisations. Because it took so long, the engineer from [organisation name] was taken off and put on another job. So we are looking at breaking in new people. Then we found that [organisation name] managed radius server that we were going to use actually can't do what we need to do and [organisation name] didn't know that as well. It's to do with the ability to deal with the large number of IP addresses. So we are now back to square one and waiting for pricing from [organisation name] to set it up as our own".*

When technical issues are resolved, the NextG Gateway will be able to transmit images from the Interns out to a practitioner on call. Other capabilities mentioned were the ability for an allied health person to use NextG to input information directly into the network. *“Basically what happens is, the theory is, that you log in by NextG through this mechanism and it is just like you would be sitting at your desk with your network at work”.*

Explained the Clever Health Project Officer in more detail, *“We have nextG modems that we will put into laptops, which can then take the pictures from the Interns. It means that if a GP is doing after hours, they may be at home; they can then see the pictures and other data from the Intern and make decisions on treatment. There are some security issues around that, because we open up the GRHANet network; that has implications around security of data and we also have some issues of being able to transmit the data”.*

While stakeholders generally have little understanding of the NextG Gateway capabilities and opportunities at this time, smaller healthcare providers in particular pointed to the potential of easier and timely access to medical expertise. *“You know, if you have one doctor between 6 towns... then you have provided access, haven't you”.*

3.2.4 Video-conferencing Facilities in BHS Operating Room

Since the first report, the VC design work on the Ballarat Health Services (BHS) Operating Room has been completed and costings have been finalised for the equipment to be installed in the BHS operating theatre. Cabling is being put in place to link the operating theatre link with the lecture theatre and all of the equipment has been ordered from the suppliers.

Explained a BHS representative, *“In theory people can sit in the lecture theatre and watch or review a theatre procedure that has gone on. It will actually work really well. I guess the next step will be other hospitals being able to access that information or those procedures. Stakeholders were particularly excited about the ability of having procedures recorded and played back anytime. “My understanding is that things that happen [in the Operating Room] can actually be taped and replayed, so that we don't*



have to do the same thing over and over again. That's an opportunity there. We have the Deakin University medical school coming online in 2010, so that will provide an opportunity for medical students to be able to review a procedure without actually having to be crowded into the operating theatre, which sometimes makes it difficult for procedures to work".

Other stakeholders agreed, reporting that to date regionally-based staff simply missed out on CPD opportunities of this kind *"because at the moment we have to get them off the floor, they have to take time out of their surgery, you have to write a letter, you have to get it organised, you have to fit in with all the other schedules and who they can accommodate. Then you are not sure what you are going for because you don't know what is on that week – that type of thing. So it will build in some flexibility when surgeons know that a patient they have sent down is going to have some complex procedure, they can actually watch it. There has to be opportunities in that".*

As part of their ongoing awareness raising campaign, the Clever Health project team recently made a presentation on the BHS Operating Room project to a group of doctors. "It was well received with lots of questions and quite a bit of enthusiasm, particularly from the surgeons" reported a stakeholder who was present. *"The only downside from the surgeons' point of view is that this equipment is just going into one theatre and from what I can gather they are quite particular about which theatre they use, so they are going to have to get a bit more flexible".*

More than one stakeholder noted that legal issues still needed to be fully investigated in this area, particularly around the matter of informed consent from patients. *"Well, I suppose a lot of it is really about the equipment, we have the equipment and then we need the policies and protocols behind that",* said one stakeholder. Another stakeholder saw this matter as a temporary barrier, *"I think that there is going to be a lot of legal hurdles that we would need to get over...you know patient consent and those sorts."*



3.2.5 GRHANet University of Ballarat Link

The GRHANet-UB link is now in place, and is fully operational. As the Clever Health Project Manager explained, *“we’ve had the infrastructure there for quite some time, but again the issue has been trying to co-ordinate so many different parties, because there are three parties, this is quite complex. What I try to do is leave them to co-ordinate things, but that is not necessarily happening, so I have to drive that a lot more than I necessarily should”*.

Stakeholders were unanimous in their enthusiasm for the rollout of non-clinical units across the network, but also expressed a need to better understand the logistics of eLearning rollout. *“I think the potential is great, it is exciting and I also think we are just at the very start and there is a lot of work to do about policies, procedures, who has to do what, who has to pay for it. A whole lot of other issues”*.

While technical issues were being resolved, a series of UB working party meetings took place to identify units which could be offered by the University to health agencies in the region. During a recent VC meeting between UB and a regional health service, information technology training units were identified for development and rollout across the network from late Semester 1, 2008.

UB will be delivering up to three introductory Information Technology units from Certificate 1. UB will incorporate students as part of an existing distance education group, which is managed and run out of Horsham. The GRHANet course will follow the established ‘distance education’ practice which includes a student workbook and email contact. GRHANet students will benefit from a customised delivery which will be complemented by video-conferencing and online content. The three units that are being delivered are: (1) Operate a word processing application; (2) Operate a spreadsheet application; and (3) Send and receive information using Internet web browsers and email, which also includes use of a calendar and an Internet search component. The training is presented on the basis that the three (3) units will be delivered sequentially. Sessions will be recorded for subsequent re-broadcasting, which will be especially useful to students unable to attend scheduled video-conferencing times.



3.2.6 Peer Support

As part of the network building work being undertaken by GRHANet, awareness of the potential of, and interest in, peer support has been growing at a steady pace. Stakeholders generally agreed that using VC wasn't only about conducting meetings and gaining the required competencies, but also about clinical support and peer support. Explained one stakeholder: *"Particularly for those out in the west who can be quite, not disadvantaged, but certainly there are large differences from other peer support. I don't think we can underestimate the value of supporting others, communicating face to face both professionally and in some respects socially"*.

Reiterating the importance of peer support, another stakeholder explained: *"I would like to see it used not only in support for direct education – exchange of ideas around the region. And likewise as [name] was saying, geographically with allied health staff and GP staff requiring support amongst themselves would be invaluable. Clinical care, we hope it decreases unnecessary transfers to Ballarat and Metropolitan health services"*.

A number of professional groups are starting to utilise the VC system for team meetings and peer support among special interest groups such as Speech Therapists. The Project Officer is also working with a Palliative care team to further increase VC usage.

Mentoring was repeatedly mentioned by stakeholders as an important eLearning opportunity. *"We are keen to set up some mentoring and support for people who have an interest and who are in those generic divisions. For example, we might make a time to visit and to do some joint assessments, but then follow up with VC or whatever might be appropriate for that, particularly to establish those links across the region because it is pretty tough for some of those, particularly young allied health workers right over towards the border that have enormous case loads and a variety that someone of my experience would be daunted to have. We are just trying to work out how best we can support people"*.

A Neuro-Psychology trial was recently conducted between Ballarat and Horsham to provide mentoring to a student out in the region. The initial feedback from the trial



has been very positive and the trial is now moving forward to using VC for remote family meetings and consultations, according to the Clever Health Project Officer. *“It’s working quite well, patients are feeling comfortable with it, that sort of thing...I think that people are shifting in terms of their willingness to engage. Not everyone is actually prepared to try yet, but we are starting to get enough instances where people are seeing success happen and are willing to try it”*. Added one stakeholder, *“we are only just starting off. There is potential for servicing the whole region, so we are just waiting to see how it is going to go and hopefully sort out the problems as we go. We think it is exciting”*.

4 Implications

The aim of the second phase of evaluation was to capture current awareness, expectations and projected use of Clever Health components; and to compare those to initial perceptions and expectations for themes and perceived changes in awareness and progress of the Clever Health project.

Interview and focus group questions were designed to add to baseline data which in turn will inform the design of a larger survey evaluation instrument to be deployed during the next phases of project evaluation. The framework underpinning the current design of focus group and interview questions was based on the anticipated uptake of Clever Health components and planned behaviour around such uptake.

Section 3 captured current perceptions of awareness, expectations and projected use of Clever Health components. This section provides salient themes from the findings and highlights any implications from these findings.

4.1 Salient Themes

Awareness of the Clever Health project has grown exponentially and perceptions of the potential of Clever Health components are optimistic. Stakeholders are increasingly willing to be involved in what they perceive to be a great opportunity for their health service and for their region as a whole.

Generally the perceptions around the use video-conferencing (VC) for meetings, training and peer support are positive. Salient issues identified by stakeholders pertained to the reliability of the VC equipment and GRHANet network. Although network and equipment failure are uncommon, it is clear that at this early stage of implementation any technological malfunction impacts on user confidence. Other issues identified were access to VC equipment in multi-function rooms and the complexity of separate equipment and room booking. While these issues are of concern, they fall outside the terms of reference for the project.



Regional stakeholders are eager to link into external expertise, particularly in tertiary institutions located in the metropolitan area. The general consensus is that health services in the metropolitan region are not as advanced as the Grampians region in their adoption of telehealth solutions. This is not surprising given that metro-based public health services generally have ready access to medical expertise and are hence not as driven as the region to implement VC solutions and protocols to overcome under-resourcing and isolation. This is a challenge for the region in terms of establishing reliable regional-metro VC linkages and related access to medical expertise. Access to private medical expertise exposed other complexities such as payment for services rendered. An important issue raised vis-à-vis the use of the Mobile Units pertained to the need to build policies and protocols around Intern use with clients. This issue is already being addressed through the development of a uniform consent and patient information form for use by participating health services.

Multiple and exciting opportunities were identified, not just for eLearning, but also for the recording and delivery of training to regionally dispersed primary health teams. Stakeholders were unanimous in their enthusiasm for the rollout of non-clinical units across the network, but also expressed a need to better understand the logistics of eLearning rollout in terms of policies, procedures and financial arrangements. As in the past, issues surrounding computer literacy were raised, in particular among older health professionals. While computer literacy issues fall outside the parameters of the Clever Health project, it was recognised that the project is well placed to facilitate access to technology training via the GRHAnet infrastructure.

Mentoring was identified by stakeholders as a significant opportunity for the GRHAnet infrastructure. The latter may be viewed as a form of peer support, which can be pursued in the form of lecturer-student(s) mentoring and peer-to-peer mentoring. It also has great potential for case review and case discussion. A number of professional groups have started to utilise the VC system for team meetings and peer support. A Neuro-Psychology trial recently conducted between Ballarat and Horsham to provide mentoring to students out in the region has been positive and the trial is now moving forward to using VC for remote family meetings and consultations.



With a regional medical school coming online in 2010, the BHS Operating Room component is perceived as an excellent opportunity for both medical practitioners and students to review procedures. Surgeons have expressed interest in the VC equipment, even if not located in their preferred theatre. Due to the prohibitive cost of installing equipment across BHS operating theatres, this option falls outside of the financial scope of the Clever Health project. The most significant issue pertaining to the BHS Operating Room is that legal issues still need to be fully investigated in this area, particularly around the matter of informed consent from patients.

Stakeholders generally had little understanding of the NextG Gateway capabilities and opportunities at this time, although smaller healthcare providers in particular pointed to the potential of easier and timely access to medical expertise. The main issue pertaining to the redundancy component of the NextG IP Gateway relates to security to be resolved around the use of patient data over the open GRHANet network.



5 Summary

It is evident that the Clever Health project is a significant change management exercise that will take time to be understood and adopted. Solving infrastructure hurdles, encouraging technology uptake through information and training sessions, and working with stakeholders on establishing appropriate policies and protocols are useful and important steps towards enabling new, more efficient ways of patient care, continuing professional development, learning and teaching in the Grampians region.

The project is solidifying relationships and goodwill across the region and it is clear that there is potential for servicing the region on a number of levels through the GRHANet infrastructure. Apart from multiple and exciting opportunities for the use of Clever Health components, there also is growing interest from external stakeholders to link into the Clever Health network, which is reciprocated by regional stakeholders eager to link into external expertise, particularly in tertiary institutions located in the metropolitan area.

The project has already demonstrated great potential for building new networks, relationships and alliances that allow for economies of scale and scope that extend well beyond the region. As the project proceeds, network usage will need to be carefully managed to ensure GRHANet's infrastructure and resources are able to facilitate growing take-up of services.



6 Glossary

ADSL	Asymmetric Digital Subscriber Line
BDSL	Business Digital Subscriber Line
BHS	Ballarat Health Services
CRIC	Centre for Regional Innovation & Competitiveness
CPD	Continuing Professional Development
DCITA	Department of Communications, Information Technology and the Arts
DON	Director of Nursing
GREWP	Grampians Region eLearning Working Party
GRHANet	Grampians Regional Health Alliance Network
GWIP	Government Wideband Internet Protocol
ICT	Information and Communication Technologies
MD	Medical Doctor
NCF	National Communications Fund
NextG IP	Next Generation Internet Protocol (third generation wireless)
PHC	Primary Health Care
UB	University of Ballarat
VC	Video-Conference



References

Braun, P. (2006). *Grampians health region eLearning feasibility study*. CRIC, University of Ballarat.

Ziebell, P. (2007). *Clever Health: What is Clever Health?* GRHANet, Department of Communications, Information Technology and the Arts.



Appendix 1 – Evaluation Plan

Program Features	Objectives/Expected Outcomes	Evaluation Measure	Evaluation Method	Actual/Unintended Outcomes/Effects	Longer Terms Issues/Change
1. High Quality Mobile Video Conference Units and associated specialist equipment.	Patient treatment in emergency/urgent care Peer support and advice mechanisms Development of evidence based practice and case analysis	Equipment procured, installed, tested and operational Number of patients receiving treatment/urgent care Number of Peer support received	Baseline Interviews Survey Panels – online questionnaire Data from sub-committee	Awareness, Use & Efficiency of equipment	Leading Indicators for shifts in program progression
2. eLearning rollout	Increase skills of health professionals in the region Attraction and retention of skilled professionals	2 blended units in 2008 Number of units rolled out 2008-2009 Number of people took up modules; effectiveness of delivery	Baseline Interviews Assessment attached to eLearning rollout Survey Panels – online questionnaire eLearning data from	Awareness, Uptake & perceived benefits of eLearning	Leading Indicators for shifts in program progression



Program Features	Objectives/Expected Outcomes	Evaluation Measure	Evaluation Method	Actual/Unintended Outcomes/Effects	Longer Terms Issues/Change
		Attraction and retention of skilled professionals	sub-committee Secondary data		
3. Installation of NextG IP gateway	More rapid patient treatment in emergency / urgent care Improved network redundancy	Equipment procured, installed, tested and operational Usefulness of NextG – used by whom	Baseline Interviews Use & Efficiency of equipment Redundancy data from sub-committee	Awareness, Use & Efficiency of equipment	Leading Indicators for shifts in program progression
4. Establishment of high quality video facilities in new Operating theatre at BHS	Watch operations in real time or through video streaming methods	Equipment procured, installed, tested and operational Number of theatre operations watched Number of evidence-based cases	Baseline Interviews Survey Panels – online questionnaire Data from peer sub-committee	Awareness, Use & benefits of equipment	Leading Indicators for shifts in program progression
5. Linking GRHANet and University of Ballarat	Facilitate delivery of first level training and professional		Baseline Interviews Survey Panels – online questionnaire	Community awareness, Use & benefits of link	Leading Indicators for shifts in program progression



Program Features	Objectives/Expected Outcomes	Evaluation Measure	Evaluation Method	Actual/Unintended Outcomes/Effects	Longer Terms Issues/Change
	development Access to AARNET for education and training Community access to education		Data from Uni sub-committee		



Appendix 2 – Focus Group Participants

Focus Group 1	Monday March 17th 11:30 pm - GReWP
Name	Organisation
Allan Donnelly	DHS
Darren Welsh	West Wimmera
Debbie G (Beaufort)	Beaufort
Louise Martin	HHS
Enid Smith	SRH
Karen Davies	Ballarat District Nursing
Jeremy Akker	Wimmera Health

Focus Group 2	Monday March 17th 2pm
Name	Organisation
Kim Belsar	ACAS Team
Irene Trickey	ACAS Team
Ann Merrett	West Wimmera Health services
Brian Hansen	East Wimmera Health Service
Cheryl Watson	East Wimmera Health Service
Meredith Atkinson	BHS – Dietitian
Meredith Finigan	Edenhope & District Memorial Hospital



Focus Group 3	Tuesday March 18 th 10am
Name	Organisation
Marlene Goudie	Project Officer East Grampians Health Services
Tracey Wilson	Manager Strategic Planning and Population Health
Loretta Shepherd	PINARC
Niki Reeve	Manager Primary Mental Health Team



Appendix 3 – Focus Group Question Guide

I. Clever Health Awareness

FGQ1: What has been your role(s) in Clever Health to date?

FGQ2: What level of awareness exists of CH?

PROMPTS: Which people in your organisation have had interaction with the CH initiative to date? What has happened to create awareness of CH? Has this influenced awareness of CH? How?

II. Clever Health Perceptions

FGQ3: Has your understanding of the CH project changed in the past six months?

PROMPTS: How? Do you/your staff have a better idea now of what is involved in CH? What is the general perception of CH?

FGQ4: Have there been any 'by-products' or ideas for unanticipated uses of CH technology in your organisation?

PROMPT: Have you found that CH may be suited to areas of work not anticipated before?

III. VC Technology

FGQ5: Have you/your staff been using video-conferencing and what are the current perceptions of this technology?

PROMPTS: Have there been any issues using VC equipment? Have there been access or technical issues?

IV. Mobile Devices and improved technologies for hospital/ community health workers' use

FGQ6: Are you familiar with the Intern mobile video-conferencing unit?

PROMPTS: Have you seen a demonstration of the equipment? What do you think the mobile unit could be used for? What peer support can these mobile units provide for you/your staff?



V. Video-Conferencing facilities in BHS Operating Room

FGQ7: Are you familiar with the BHS Operating Room VC component of the CH project?

PROMPTS: What do you think the BHS Operating Room could be used for? What peer support can CH operating room provide for you/your staff? What are your expectations for your health service for this?

VI. eLearning

FGQ8: What forms of eLearning are currently being used in your organisation?

PROMPTS: What are your CH expectations in terms of eLearning and peer support (informal mentoring arrangements or may be informal collegiate support?). What type of eLearning units would you like to have access to? What needs to happen to get your org/staff to adopt eLearning?

VII. General Comments

FGQ9: What needs to happen to help awareness and implementation of Clever Health?

PROMPTS: Are there any gaps, technical or training issues that need to be addressed? How do you expect to address these issues?



Appendix 4 – Interview Participants

Claire Letts

Chair, Clever Health Steering
Committee

Peter Ziebell

Clever Health Project Manager

Gayle Boschert

Clever Health Project Officer